

**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1-26. (canceled)

27. (currently amended) A method for immunization, prophylaxis or treatment of a vertebrate at risk of or suffering from ~~a disease caused by a pathogenic micro-organism~~ Brucellosis comprising the steps of:

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- a) extracting deoxyribonucleic acid from the ~~pathogenic micro-organism~~ Brucella;
  - b) identifying at least one gene encoding at least one homologous antigen from the deoxyribonucleic acid wherein said at least one homologous antigen is capable of stimulating which induces protective immunity against the ~~pathogenic micro-organism~~ Brucella;
  - c) inserting the at least one gene into a multicopy plasmid capable of replicating and expressing in the ~~pathogenic micro-organism~~ Brucella;
  - d) transforming an attenuated or avirulent strain of the ~~otherwise pathogenic micro-organism~~ Brucella with the plasmid to form a vaccine; and
  - e) administering an effective amount of said vaccine to the vertebrate,
- wherein the ~~pathogenic micro-organism~~ is Brucella selected from the group consisting of B. abortus, B. melitensis, B. suis, B. ovis, B. neotomae and or B. canis.

28. (currently amended) The method of claim <sup>1</sup>27, wherein the attenuated or avirulent strain of *Brucella* pathogenic micro-organism is *B. abortus* strain RB51.

29. (previously presented) The method of claim <sup>2</sup>28, wherein the at least one gene is a Cu/Zn SOD gene.

30. (previously presented) The method of claim <sup>2</sup>29, wherein the at least one gene is one or both of a GroES gene and GroEL gene.

31-34 (canceled)

35. (currently amended) A method for immunization, prophylaxis or treatment of a vertebrate at risk of or suffering from ~~a disease caused by a pathogenic micro-organism~~ Brucellosis comprising the steps of:

a) extracting deoxyribonucleic acid from the ~~pathogenic micro-organism~~ *Brucella*;

b) identifying at least one gene encoding at least one homologous antigen from the deoxyribonucleic acid wherein said at least one homologous antigen is capable of stimulating ~~which induces~~ protective immunity against the ~~pathogenic micro-organism~~ *Brucella*;

c) inserting the at least one gene into a multicopy plasmid capable of replicating and expressing in the ~~pathogenic micro-organism~~ *Brucella*;

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d) transforming an attenuated or avirulent strain of the ~~otherwise pathogenic micro-~~organism Brucella with the plasmid to form a vaccine; and

e) administering an effective amount of said vaccine to the vertebrate,  
wherein the ~~attenuated or avirulent strain of Brucella pathogenic micro-organism is B.~~  
*abortus* strain RB51.

6 36. (previously presented) The method of claim <sup>5</sup>35, wherein the at least one gene is a Cu/Zn SOD gene.

7 37. (previously presented) The method of claim <sup>5</sup>35, wherein the at least one gene is one or both of a GroES or a GroEL gene.

38-43 (canceled)

8 44. (new) The method of Claim <sup>1</sup>27, wherein the attenuated or avirulent strain of *Brucella* further expresses one or more heterologous antigens.

9 45. (new) The method of Claim <sup>1</sup>27, wherein the vertebrate is a bovine.

10 46. (new) The method of Claim <sup>5</sup>35, wherein the *B. abortus* strain RB51 further expresses one or more heterologous antigens.

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11-47. (new) The method of Claim ~~33~~<sup>5</sup>, wherein the vertebrate is a bovine.